gradient

aspen 4

[en] - User manual, **[de]** - Betriebshandbuch, **[fr]** - Manuel d'utilisation, **[cz]** - Uživatelská příručka

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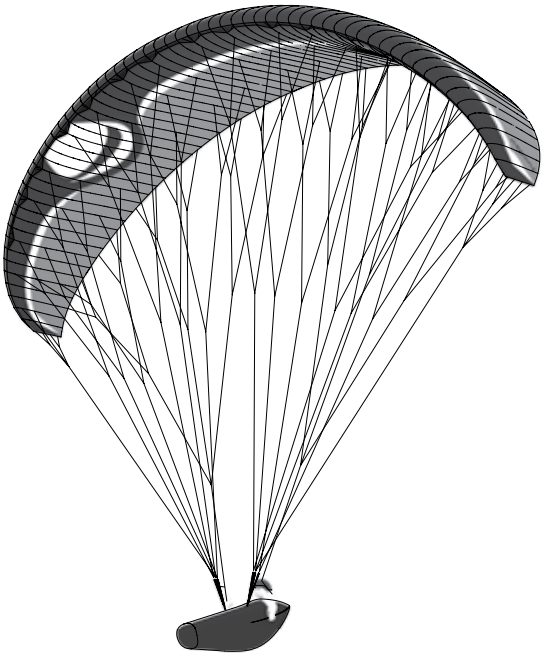

aspen4

User manual

Please read this manual carefully and keep its instruction in mind when using your Aspen4 paraglider

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1. Introduction

Congratulations on buying a new Aspen4 – Gradient's latest high-performance wing in the EN-C category. We believe you will be very happy with your new glider in terms of its flight characteristics, exceptional performance and really nice handling.

After three years of popular acclaim, excellent reviews and over 1,000 Aspen 3s sold worldwide, Gradient is replacing the Aspen 3 with a new glider, the Aspen4, the next generation in the EN C category.

Our aim was to create a totally new glider: to build on the huge technological developments of recent years combine them with the latest materials and technical know-how. A glider that would bring a massive, distinct improvement in performance while retaining the comfort, dynamics, handling and safety typical of all Gradient gliders.

To that end we developed our new Double Diagonal System (DDS) and applied it to a three-line layout. We reduced the number of weight-bearing ribs and attachment points on the canopy, and as a result have reduced line consumption by 35% when compared with the Aspen 3. The result is a big increase in glide ration, not only at trim speed but mainly at high speed – so important for XC flying.

In developing the Aspen4 we put the prototypes through their paces in a wide range of flying conditions: easy soaring, soaring in strong winds, weak to moderate thermals as well as extremely strong thermals in De Aar in South Africa, Gradient's favourite testing ground.

The Aspen4 is designed as an EN-C category glider and thus is intended for experienced pilots, who are capable of active flying. Outstanding performance, nice handling, predictable behaviour and stable accelerated flight makes the Aspen4 a very interesting solution for a really wide range of XC pilots.

This manual provides information, which will help you fly safely and keep your wing in good condition. If after reading this booklet you have any further questions or uncertainties, please do not hesitate to contact our company or any authorised Gradient dealer and we will gladly answer all your questions.

We would also welcome feedback from you about your new Aspen4.

2. Your paraglider

2.1. Technical description

• The Aspen4's ground plan has a slender, elliptical shape with a slight positive contortion of the leading edge. This means that the "ears" (stabilo) of the canopy

slightly swept back in flight. This modern design has a number of advantages.

• The glider's profile has been specially developed to deliver maximum stability over as wide a speed range as possible. The position and size of the cell openings help support this objective.

• The leading edge is reinforced using integrated nylon and elastic. This ensures optimal inflation of the canopy and helps to retain the leading edge's perfectly clean shape at maximum speed.

• Attachment points between the lines and the canopy are reinforced by elastic nylon strings, optimising the distribution of forces across the glider.

• The newly developed Unique Double Diagonal System makes it possible to use only 48 hanging loops on the canopy and less than 240m of line (for the size 28). This is 35% less line than used in the Aspen 3. The result is much better glide.

• The layout of the line attachment tabs improves stability at maximum speed – an essential feature of modern high-performance paragliders.

• The well-proven three-rows and three-level line concept with only two main lines per side is used.

• The top- and mid-level lines have progressively differing diameters and are unsheathed for maximum efficiency. All these lines have the advantage of splice loops, giving maximum overall strength, durability and the lowest possible drag.

• A sophisticated combination of Dyneema and Vectran lines are used in the line layout. This is done so the glider will maintain its correct geometry over a long time, despite differences in shrinkage characteristics of the lines or materials.

• The Aspen4 is supplied with a well proven three-riser speed-system which gives great acceleration and maximum speed.

Length of the Aspen4 risers (mm):

Size 22	A	B	C
non-accelerated	445	445	445
accelerated	330	352	445

Size 24	A	B	C
non-accelerated	460	460	460
accelerated	340	363	460

3.

Size 26	A	B	C
non-accelerated	480	480	480
accelerated	355	379	480

Size 28 + 30	A	B	C
non-accelerated	500	500	500
accelerated	370	395	500

• Gradient has paid attention to details too, including new low-drag micro attachment points on the wing tips, special karabiners, and a new rucksack, inner bag and riser bag.

2.2. Technical data

Aspen4	Units	22	24	26	28	30
Flat area	m2	22.06	24.10	25.94	27.86	30.42
Projected area	m2	19.02	20.77	22.36	24.01	26.22
Span	m	11.50	12.02	12.46	12.92	13.50
Projected span	m	9.22	9.63	10.00	10.36	10.83
Aspect ratio		5.99	5.99	5.99	5.99	5.99
Projected aspect ratio		4.47	4.47	4.47	4.47	4.47
Max. chord	m	2.41	2.52	2.62	2.71	2.83
Min. chord	m	0.50	0.52	0.54	0.56	0.58
Number of cells		62	62	62	62	62
Line consumption	m	212.9	222.5	230.8	239.2	249.9
Weight of the glider	kg	4.7	5.0	5.4	5.8	6.2
Take-off weight range	kg	67-80	75-90	85-105	95-115	105-130
Certification EN / LTF			C	C	C	
Basic speed	km/h	39	39	39	39	39
Max. speed	km/h	58+	58+	58+	58+	58+
Min. sink rate	m/s	0.95	0.95	0.95	0.95	0.95
Glide ratio		10+	10+	10+	10+	10+

Take-off weight is the weight of the pilot including equipment and paraglider (approx 22-27 kg)

2.3. Materials

Canopy

Upper sail-leading edge	NCV New SKYTEX, E77A, 40 g/m2
Upper sail-trailing edge	NCV New SKYTEX, E38A, 40 g/m2

Bottom sail	NCV New SKYTEX, E38A, 40 g/m2
Ribs	NCV New SKYTEX, E29A, 40 g/m2
Reinforcements	Scrimm 180 g/m2, Dacron 160 g/m2
Reinforcements	Hahl Nylon rods ø 2 mm, Laminated PES 60 g/m2

Suspension lines

Lines-top level	Liros Dyneema DC 060, ø 0.6 mm, uncovered
Lines-top level	Liros Dyneema DC 100, ø 0.7 mm, uncovered
Lines-top level	Cousin Vectran 16140, ø 0.7 mm, uncovered
Lines-middle level	Liros Dyneema DC 120, ø 0.8 mm, uncovered
Lines-middle level	Liros Dyneema DC 160, ø 0.9 mm, uncovered
Lines-middle level	Cousin Vectran 16330, ø 1.0 mm, uncovered
Lines-bottom level	Liros Dyneema PPSL 275, ø 1.8 mm, covered
Lines-bottom level	Liros Dyneema PPSL 200, ø 1.42 mm, covered
Lines-bottom level	Liros Dyneema PPSL 160, ø 1.40 mm, covered
Lines-bottom level	Liros Dyneema PPSL 120, ø 1.15 mm, covered

Risers

Webbing	PAD, 1.6 x15 mm
Pulleys	Parafly, Rilay
Karabiners	Maillon Rapide, Inox ø 3.5 mm

3. Certification

The Aspen4 is certifed EN C in sizes 24, 26 and 28.

The EN certification sticker for each Aspen4 is on the rib in the middle of canopy. Certification is valid for use with all ABS harnesses. This type of harness allows a certain degree of adjustment to be made to the length of the waist strap. Between 44cm and 48cm – with regard to the size of the glider – is the recommended distance between the karabiners.

In common with all other paragliders, when looser cross-bracing is used while flying the Aspen4, the pilot's weight-shift control is greater. The glider is also more sensitive to movement in the surrounding air. When cross-bracing is tighter, the pilot feels subjectively more stable, but turning by weight-shift is less effective.

WARNING: The Aspen4 paraglider is only built for hill or tow launching. It is not built to withstand jumping from a plane, balloon, building or for any jumps where there is a belated opening of the canopy. Use of subsidiary motor (eg paramotoring) has not been tested for by the manufacturer or by any other testing body.

4. Adjusting your glider

Before it reaches the customer every Aspen4 goes through a final check and test flight to verify that its characteristics and measurements correspond to the manufacturer's specifications. You may only make adjustments to brake-line lengths or to the speed system of your Aspen4 – and only then in keeping with the recommendations of this manual.

Other adjustments or changes to your Aspen4 lead to a loss of guarantee, airworthiness and validity of the certification. Amateur modification may endanger yourself and other pilots. If you have any suggestions for improvements let us know and our test-pilots will try out your ideas without risk to yourself.

4.1. Brake-line adjustment

When you receive your new Aspen4 the main brake lines are adjusted to the length set during the certification test. This length should suit most pilots and is indicated on the main control line. It is of course possible to adjust the brake-line length to suit each pilot's physical build, height of harness hang points, or style of flying. We recommend that you act wisely when adjusting brake-line length and change the length in small, successive steps.

If you need to adjust brakes back to the basic position and the marks on the main brake lines are vague, use the following lengths for relevant size: Aspen4 24: 230 cm; Aspen4 26: 238 cm; Aspen4 28: 247 cm.
Brake lines that are too short may:
1) lead to fatigue from flying with your hands in an unnatural position
2) impede recovery from certain unstable manoeuvres
3) will certainly reduce your glider's speed range.

Brakes that are too long will:
a) hamper pilot control during launch
b) reduce control in extreme flying situations
c) make it difficult to execute a good flare when landing.

Each brake line should be tied securely to its control handle. Use knots which will guarantee this, for example, a Double Dragon.

4.2. Addition of speed system

The Aspen4 is equipped with a very effective foot-operated speed system as standard. Pressure on the foot stirrup shortens the A and B risers and by this reduces the angle of attack of the canopy. The working range of the speed system pulleys is 13cm. Make sure you can use the whole of this range when you attach your speed stirrup. For some pilots this will require the use of a two-step speed stirrup.

5. Operation in flight

This manual is intended as a guide to the characteristic features of your new Aspen4 paraglider. Under no circumstances should it be used as a 'learn-to-fly' manual for paragliding or as a substitute for a paragliding pilot's training course.

5.1. Standard flight

5.1.1. Pre-flight check

A thorough pre-flight check is essential for safe flying and that's why you should pay special attention to it. Above all you should check that the canopy, lines and risers are free from damage and tangles. Also, don't forget to check your harness and your reserve parachute.

Before launch spread the canopy out in a slight arc and check that:

- all cell openings are free
- no lines are looped around or under the canopy
- no lines are tangled or have a knot in them
- any twigs, grass or other objects are not entangled in the lines or the canopy
- risers are not twisted
- control lines run freely through the pulleys
- knots on control handles are secure
- karabiners on risers are tightened

5.1.2. Launch

Launching the Aspen4 is straightforward, either by front launch or by reverse launch. A dynamic pull of the front risers (A, coloured red) will bring the canopy simply and easily above the pilot's head. The canopy inflates from the centre equally and smoothly. The Aspen4 has no tendency to outrun the pilot and quickly stabilises overhead. Once there, visually check the canopy and the lines before taking off. Take off can be made easier by a light pull on the brakes.

5.1.3. Flight

The Aspen4 is trimmed to fly at best glide when the brakes are fully up. Best sink rate is achieved when both brakes are drawn down evenly to about 15-20% of their range.

Turbulent conditions

When flying through severe turbulence stabilise the canopy by simultaneously applying a little brake to both sides. Flying with a little brake applied will also help to prevent deflations and give you more feedback about what the air is doing and how the glider is reacting. Responding correctly to the paraglider's movement by means of the brakes and weight shift is known as 'active flying'. A pilot demonstrating good active-flying skills will significantly reduce both the number and severity of collapses he or she experiences.

Turning

The Aspen4 is very comfortable and pleasant in turns. Handling characteristics are responsive and accurate and demand no special habits or non-standard procedures. When developing the Aspen4 special attention was devoted to the brake pressure. The result is that brake travel and pressure have been optimised. Brake pressure is reassuringly progressive. In flight, brakes are firm but responsive and precise and allow for perfect communication with the canopy. You will find that a harness with fairly loose cross-bracing will help the glider turn. In an emergency (eg a broken brake line) the glider can be steered with the rear risers or by weight shift.

Using the speed system

Maximum speed is one of the strong points of Gradient paragliders and the Aspen4 is no exception. Not only has the glider got a very high maximum speed, but the full speed range is useable. In spite of this exceptional stability at high speed don't forget that any collapse at full speed will be more severe than the same event experienced at normal trim speed. Always keep both hands on the controls when flying fast in turbulence and be ready to release the speed system immediately at the first sign of a collapse. Use the speed system very carefully or not at all at low altitude.

5.1.4. Landing

Landing the Aspen4 is very simple and should offer no difficulty. On your first flights you may be surprised at how well it glides. Take account of this when making your landing approach! Into wind, at about one metre above the ground pull the brakes down all the way. In nil-wind conditions, or if forced to make an emergency landing downwind, you may prefer to take a wrap of each control line to enable a more dynamic flare.

5.2. Rapid descent

Sooner or later every pilot will need to descend quickly. It might be because of a sudden and unexpected change in the weather, reaching cloudbase and not wishing to enter cloud, or simply because you need to finish your flight quickly. Additionally, if where you are landing is thermic, it is often very difficult to land without using a rapid-descent method. There are three main methods for achieving a rapid descent and they are: Big Ears, B-Line Stall and Spiral Dive.

Practise these manoeuvres under the supervision of an instructor and with a reserve parachute. Never compromise your safety.

5.2.1. Big Ears

This is the easiest technique for a rapid descent. Depending on how much of the wing tip you deflate, 3m/s to 6m/s sink rate can be achieved. While in Big Ears your sink rate and forward speed can be further increased by using the speed system. The Aspen4 can be steered while Big Ears are in by means of weight shift.

Initiation: Take hold of the outer A-lines on both sides as high as possible and pull them down smoothly. Hold them firmly. The effective area of the glider is reduced equally on both sides of the wing. The size of the deflated area depends on how deeply the lines are pulled down. Be sure to pull both sides equally.

Recovery: Under normal circumstances the Aspen4 will open automatically when the A-lines are released. Opening may be accelerated by gently pumping the brakes (repeated symmetrical braking on both sides).

CAUTION: Because the Aspen4 only has two main lines on each side pulling Big Ears means a large part of the canopy will fold in. The increased sink rate of the glider will increase the angle of attack. To compensate for this, push the speed bar.

5.2.2. B-Line Stall

Depending on how far the B-risers are pulled down, the sink rate is between 5m/s and 8m/s.

Initiation: Take hold of the B-risers at the top and smoothly pull them down until the canopy shows a spanwise crease where the B-lines attach to the sail. Your sink rate will increase considerably while your forward speed will decrease to practically zero. Don't be startled when the airflow over the top surface is interrupted and the canopy enters a parachutal stall without moving forward. It will soon stabilise above your head. Stability of the canopy in this manoeuvre can be significantly improved when pulling the B-risers simultaneously down and outward.

Recovery: On releasing the B-risers the Aspen4 automatically returns to normal flight without staying in deep stall (sackflug) or shooting in front of the pilot. Let go of the risers smoothly and symmetrically.

CAUTION: Due to the high aspect ratio of the glider and due to the special line layout, the Aspen4 can show quite demanding behaviour when executing the B-Stall. Do everything symmetrically and at the same time. If the B-risers are released unevenly the canopy can enter a turn. If the risers are released slowly and very unevenly you could enter a spin. Because of this complexity we do not recommend executing a B-line stall with the Aspen4.

5.2.3. Spiral Dive

The Spiral Dive is the most effective way of making a fast descent. Every pilot should be able to perform a spiral dive and one day you may need to. When in a Spiral Dive always stay aware of your altitude, which decreases very rapidly. The sink rate reached in a Spiral Dive can be more than 16-18m/s. During the manoeuvre the pilot and glider will experience strong centrifugal forces. Forces of greater than 3G are possible – a great strain on the pilot as well as the glider.

Initiation: Smoothly pull on one brake so that the glider goes from a normal 360-degree turn into a steep turn and from there into a spiral dive. The transition into a Spiral Dive can be made easier by weight shifting to the inner side of the turn.

Keep an eye on the tension of the brakes all the time: reduced tension signals an overload of the glider and danger of falling into a negative spin.

Recovery: The Aspen4 recovers from a Spiral Dive automatically as soon as the brakes are released. Release them smoothly and always finish a Spiral Dive with safe altitude!

CAUTION: When exiting the Spiral Dive make sure your position in the harness is neutral. Recovery from a Spiral Dive can be delayed if you are weight shifting to the inner side of the turn.

5.3. SIV manoeuvres

No matter what category of canopy you fly or what level of certification it has, in turbulence or in strong thermals you may experience all kinds of collapses.

The Aspen4 behaves comfortably in these situations. Indeed not only does the glider deal with extreme flight situations automatically, but it also offers – for its category – an above-average degree of safety. Even so, you must follow all safety rules when practising SIV. Always pay attention to your altitude.

Before performing any SIV manoeuvre remember:

• Practise throwing your reserve on the ground, in a simulator, so that reserve deployment is efficient and automatic.

• Rapid altitude loss and considerable rotational forces may develop during unstable manoeuvres. Take account of these factors when throwing your reserve.

5.3.1. Asymmetric Collapse – one side of the canopy collapses

Initiation: Take hold of the outer A-line on one side and pull them down smoothly. The wing tip will collapse to form a characteristic Big Ear. The size of the ear depends on the depth to which the lines are pulled. You can stop any turn tendency by applying the opposite brake and by weight shifting onto the inflated side of the canopy.

Recovery: Under normal conditions the Aspen4 will re-inflate spontaneously when the pulled lines are released. Inflation time and loss of altitude can be reduced by suitable piloting. To stop any tendency to turn off course pull the brake on the inflated side (be careful not to overreact and stall the inflated side) and weight shift to that side. If the collapse remains then re-inflate the collapsed side by 'pumping' the brake on the collapsed side.

5.3.2. Full Frontal Collapse

Initiation: Take hold of both A-risers at the top and pull them down fluently until the leading edge collapses.

Recovery: Recovery time depends on how much of the canopy has collapsed. In normal conditions the Aspen4 will recover normal flight automatically as soon as the

front risers are released. Applying the brakes on both sides simultaneously can help re-open the paraglider.

CAUTION: It is very important to execute this manoeuvre very carefully. Due to the high compactness of the leading edge it is quite difficult to find the right degree of pulling down of A-risers. If you pull them down too quickly, a massive collapse could happen!

5.3.3. Deep Stall

Initiation: Pull both brakes smoothly until the sink rate increases markedly and the forward speed reaches almost zero. The pull on the brakes should be controlled so that the canopy stays inflated and doesn't fall back into a full stall.

Recovery: The Aspen4 cannot stay in deep stall flight, so after the brakes are released the glider automatically returns to normal flight. If you need to, you can accelerate recovery by pulling hard on both brakes, followed by a fast release. Or you can pull lightly on the A-risers.

CAUTION: If you pull too hard on the A-risers you may experience a full frontal collapse.

5.3.4 Full Stall

Initiation: Wind the control lines once or twice around your hands and pull both of them down smoothly. Hold them down until the canopy falls behind the pilot and deforms into a characteristic crescent shape. Hold your hands firmly (press them underneath the seat) and be careful that you do not release the brakes prematurely or asymmetrically.

Recovery: The Aspen4 recovers from a full stall automatically once the brakes are smoothly released. During correct recovery from a full stall the Aspen4 shows no extreme tendencies such as diving in front of the pilot. If the brakes are released prematurely or too quickly there is a possible tendency for the glider to dive ahead of the pilot. This can be corrected by adequate simultaneous braking on both-sides.

CAUTION: When exiting a full stall, if the brakes are released asymmetrically the glider may suffer a massive asymmetrical collapse followed by a tendency to enter a spin.

5.3.5 Negative Spin

Initiation: Slow down by braking to nearly minimum speed. Then pull a brake on one side all the way down while simultaneously releasing the brake on the other side. Because the stalled side falls back, the canopy suffers airflow disruption over one half of the wing which results in a spin and a rapid loss of altitude.

Recovery: Under normal circumstances the Aspen4 is capable of recovering from a negative spin automatically when the brakes are released.

Caution: In general, when there is a very fast or a long-lasting rotation and when the brakes are released too quickly, the canopy may shoot in front of the pilot followed by a massive asymmetrical collapse.

WARNING: Whenever a paraglider is not in normal flight and airflow is disrupted there is always a rapid increase in sink rate and therefore a substantial loss of altitude.

Remember: When practising SIV the wrong manoeuvre at the wrong time may change a fairly easy situation into a dangerous problem. You are also exposing your glider to forces that may damage it. Practise SIV manoeuvres only under the supervision of an instructor and with a reserve parachute.

6. Maintaining your glider

If you handle your glider with care and store it in a suitable place it can last you a very long time. On the other hand, neglecting maintenance, bad storage and the use of unsuitable cleaning products can reduce the lifespan of your glider significantly or may even make it dangerous.

You must keep to these rules:

• Choose a suitable area for your launches. Lines caught on roots or rocks lead to unnecessary strain on the attachment tabs during inflation. Snagging lines may rip the canopy tissue or damage lines.

• When landing, never let the canopy fall on its leading edge in front of the pilot. The effect of these forceful collisions and the sudden pressure increase can severely damage the air-resistant coating of the canopy as well as weaken the ribs and seams.

• Protect the canopy from unnecessary strain. Inconsiderate handling of your glider – pulling it over grass, soil, sand or rocks – will significantly reduce its lifetime and increase porosity.

• When preparing the paraglider for a launch or when ground handling, be sure not to step on any of the lines or the canopy.

• Don't tie any unnecessary knots in the lines. Packing methods where special knots are made in the lines as used on parachutes and reserve parachutes are not suitable for packing the lines used on paragliders.

• Protect your canopy and lines from unnecessary exposure to sunlight. UV-rays can damage many parts of a paraglider.

• Try not to pack your glider when wet. If it’s unavoidable then dry it as soon as possible but away from direct sunlight. Be careful to avoid storing your canopy wet

– this is the most common reason for cloth degradation, and is easily preventable.

• Don't let your glider come into contact with seawater. If it does, rinse the lines, canopy and risers with fresh water and dry before storing.

• After flight or when storing always use the inner protection sack.

• When storing or during transport make sure your glider isn't exposed to temperatures higher than 50 degrees Celsius.

• Never let the paraglider come into contact with chemicals. Clean the glider with clean lukewarm water only.

• When packing the glider we recommend concertina folding the reinforced leading edge to avoid damaging the plastic reinforcements.

• For long-term storage don't pack the glider too tightly. Store it in a cold, dry and well-ventilated room.

• After tree- or water-landings always examine the glider carefully. If you suspect that the flight features of your paraglider have changed, contact an authorised Gradient supplier as soon as possible.

7. Checking your glider

After 150 flying hours or after two years, whichever comes first, your Aspen4 must be thoroughly checked and tested by the manufacturer or by a Gradient authorised service centre. This check is primarily focused on:

- measuring of porosity
- measuring of tear strength of fabric
- sewing of panels, attachment points, cell openings, etc.
- condition of lines and risers
- strength of lines
- geometry of the suspension system

All data are recorded in the test report. On the basis of the real wing's condition, the check expert can define the next check interval; under normal circumstances is it two years.

8. Repairing your glider

Only small repairs – that is, repairs that don't change the airworthiness of the paraglider – may be done by the user. These include: fixing small tears (but not seams) up to 10cm; changing damaged lines; and changing rubber line-fixation rings on the small karabiners.

When repairing your paraglider on your own observe the following rules:

• When repairing the sail use a self-adhesive patch specified for this purpose. Every Aspen4 comes with a small amount of self-adhesive material which is enough for small repairs.

• The only admissible repairs done on lines are those where the damaged lines are changed for new ones. Lines must be exclusively supplied by Gradient, an authorised dealer or authorised service centre. When ordering new lines use the codes in the attached line diagram. Use the code ‘A4’ (Aspen4) and size of the glider, ie ‘A4 24’, ‘A4 26’, ‘A4 28’, followed by the line code. Eg: the outside long line in row A for an Aspen4 28 is: ‘A4 28 A 1.2’.

• An exception to this is an emergency repair of a brake line while out flying. For this purpose Gradient encloses a spare line with every Aspen4 with a prepared loop on one end. To get the right length adjust it according to the same line on the opposite side of the canopy. As soon as you can, change the line for an original one from your authorised Gradient service centre.

• After changing any lines a thorough pre-flight check must be done. Don't hesitate to ask your instructor or an experienced colleague for help. If you're not sure, entrust the job to either the manufacturer or an authorised Gradient dealer.

• If you have to replace any of the line-tidy rings (a spare ring is supplied with each Aspen4) check that the lines haven't been swapped accidentally and that they are returned to the small karabiner in the correct order.

9. Enjoy your flying

Even though the Aspen4 has outstanding performance and stability it must be understood that even the safest paraglider is an aircraft and that all air sports can be relatively dangerous.

Remember that your safety lies in your own hands and that “lucky pilots are well prepared pilots”.

Never underestimate weather conditions. And never forget that you are flying for pleasure and not to become a ‘fallen hero’. Remember this and the fun that only free-flying can bring will be yours.

We believe that your sensible attitude and the flight characteristics of your Aspen4 will combine to ensure you have many hours of fantastic flying.

Gradient wishes you many fabulous flights and happy landings.

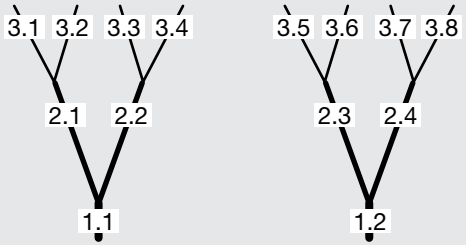
Ondřej Dupal
Director

Václav Sýkora
Designer

10. Gradient Aspen4 – Line Map

Middle of the cannopy

Row **A**



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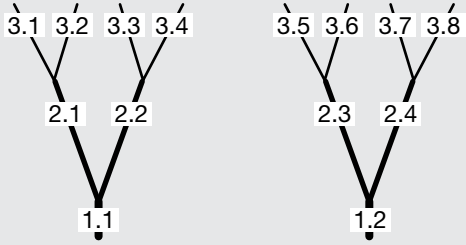
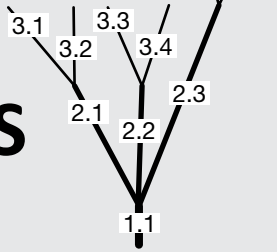
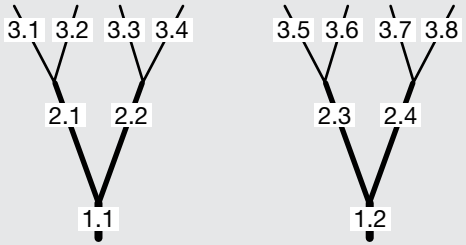


S

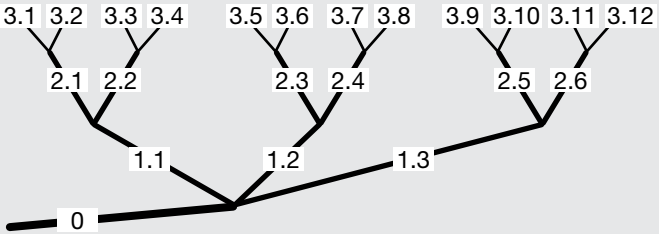


Leading edge

Row **C**



Brakes **R**



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